

STUDENT DIGITAL ASSISTANT USING ANDROID PLATFORM

Paper

Department of Informatics

Faculty of Communication and Informatics



Submitted by :

Yanti Ghaffaar

Gunawan Ariyanto

Dedi Ari Prasetya

**DEPARTMENT OF INFORMATICS ENGINEERING
FACULTY OF COMMUNICATION AND INFORMATICS
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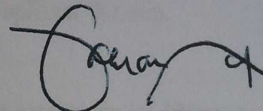
YANTI GHAFFAAR

NIM : L200102011

Day : Monday

Date : December 15th 2014

Advisor I



(Gunawan Ariyanto Ph.D)

NIK : 968

Advisor II



(Dedi Ari Prasetya, ST)

NIK : 982

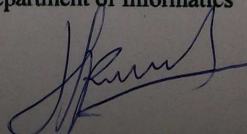
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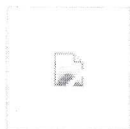
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STUDENT DIGITAL ASSISTANT USING ANDROID PLATFORM

**1Paper Department of Informatics Engineering Faculty of Communication and
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: Yanti Ghaffaar Gunawan Ariyanto Dedi Ari Prasetya

**1DEPARTMENT OF INFORMATICS ENGINEERING FACULTY OF
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UNIVERSITAS MUHAMMADIYAH SURAKARTA
FAKULTAS KOMUNIKASI DAN INFORMATIKA
PROGRAM STUDI INFORMATIKA

Jl. A Yani Tromol Pos 1 Pabelan Kartasura Telp. (0271)717417, 719483 Fax (0271) 714448
Surakarta 57102 Indonesia. Web: <http://informatika.ums.ac.id>. Email: informatika@fki.ums.ac.id

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STUDENT DIGITAL ASSISTANT USING ANDROID PLATFORM

Case Studies : Informatics Engineering UMS

Yanti Ghaffaar, Gunawan Ariyanto, Dedi Ari Prasetya

Department of Informatics Engineering, Faculty of Communications and Informatics

Muhammadiyah University of Surakarta

Email : yanti.ghaffaar@yahoo.com

ABSTRACT

Students need facilities to support their academic activities and efficiently, using an advanced technology that can process information. The precision, accuracy, and speed is something that is needed for students to manage their studies. Therefore, this needs to be balanced with the availability of increasingly innovative technology. Android technology has recorded as the fastest growing operating system in the mobile world. Many mobile users have switched to android recently. Indirectly, almost all students are Smartphone users with android operating system. Therefore, the authors chose Android as the subject of this study.

Therefore, students need an alternative media, which is an android application that can be used. The method used in the making of this application is the equipment analysis, data collection application, design building applications, and application testing. This application is created by using a system that supports the application of the Eclipse IDE and Android SDK. Database used is SQLite.

It is considered more effective and efficient than be use of the application manually. For example you can save time, materials, compare to the usage of paper. As the results of research, the application can be used can plan their studies in order to pass by the target.

Keyword: *Android, Eclipse, ADT, SQLite.*

INTRODUCTION

Students need education facilities to support their academic activities and efficiently, using an advanced technology that can process information. The precision, accuracy, and speed is something that is needed for students to manage their studies. Therefore, this needs to be balanced with the availability of increasingly innovative technology.

Android technology has recorded as the fastest growing operating system in the mobile world. Many mobile users have switched to android recently. Indirectly, almost all students are smartphone users with android operating system. Therefore, the authors chose Android as the subject of this study. This android smartphone will allow students to obtain an application, by downloading it for mostly free. In addition, this application can also be easily removed or deleted.

In reality, students need a digital assistant application that can help them plan courses, keep track of class or exam schedules, field course, course value store, and print the value of the results of the study. Therefore, students need an alternative media, which is an android application that can be used. It is considered more effective and efficient than the use of the application manually. For example you

can save time, materials, compare to the usage of paper. Based on this background, the researchers raised the title "Student Digital Assistant using Android Platform."

OBSERVATION

The researcher used a research study from previous thesis with the problems relates with the title of this research. This research study is also used as a comparison between some previous studies that have been done and what will be done in this research by the researcher. Some of the research studies are:

The study is done by Mahendrawati, [2011], which analyzes academic progress of each class or each student. By using a web server that has been containing the students data input, the students grades data input, the students grade data of each class can be seen from the lowest and highest values for statistics and students data who can pass or not for the year examination, and teacher data input as information for homeroom teacher which responsible for that class and print out the student report. The result of research is report online web application which has some facilities; the student data, teacher data of SMAN 2 Wonogiri, student's data grades, students chart achievements.

Wijaya, [2013], his research makes academic information system android application of State Islamic Universitas Sunan Kalijaga. This study result an android

application which can be used to access students' academic information, such as class schedules, examination schedules, study cards result, and students GPA. The advantage of this application is, the application can be done on offline some certainties. The application is expected to have other advantages, both in easy of operation, speed of access, comprehensive of application features.

Simponi is a website for Multi Data Palembang (MDP) Academic Information Systems which dedicated for lecturers and students in order to have a useful value and also provide service quality by utilization of internet technologies for accessing information. From this background above, the researcher supposed an opportunity of using smartphone technology to facilitate access the Academic Information System in order to easy visiting by prioritizing features and speed information access. In his research discusses system academic applications on the Android based in STMIK Multi Data Global Information Palembang. This will be able to manage academic activities. One of the facilities is an important facility that can be used by students and lecturer in the form of discussion, materials study, inputting grades, schedule information, announcements and assignments. Achyarudin, et al. [2013]

RESEARCH METHOD

1. Research Plot from this Application are Shown in Figure 1.

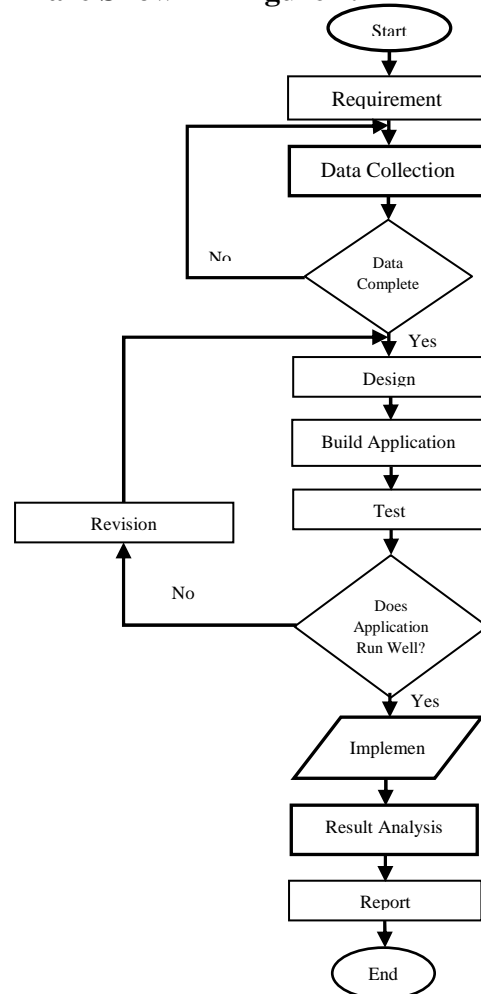


Figure 1. Research Flowchart

Description of Research Flowchart:

a) Requirement Analysis

The first stage before building the application is analyzing requirements what is needed to build the system. Analyzes software and hardware that will be used to design applications.

Information requirement analysis that will available to user are:

1. Computer component specification that will introduce in application are:

- a. Processor Intel (R) i3 CPU M350
@ 2.27GHz 2.26 GHz
- b. 500 GB hard drive
- c. 2 GB RAM
- d. Windows 7 Operating System
- 2. Application Menu
 - a. Name and nim
 - b. Active semester
 - c. Study plan
 - d. Test and exam schedule
 - e. Task
 - f. Study result
 - g. Study records
 - h. Change Password
 - i. About

Software requirements to build application are:

- 1. Android Development Tool 22.0
- 2. Adobe Photoshop CS3

Software requirements to run application are operating System Android 2.3 (Gingerbread).

Hardware Requirements to run application are mobile phone with specification:

- a. Android version 4.2.2
- b. RAM 512 MB
- c. Internal Memory 8.00 GB
- d. Dual Core 1.4GHz Processor
- e. 5.8 qHD TFT Display
- b) Collecting Data

This stage is stage of looking for references and data collection about what it takes to design applications.

c) Design User Interface

After all of the data is completed, the next stage is analyzing and designing applications that will be made in accordance with the needs of the system.

d) Build Application

On this stage all the data completeness implemented into the system. Analysis of the database, preparing the data image and icon, create a new project in ADT, setting text in res / values / strings.xml, prepare layouts in the folder res / layout, creating a Java file in the src folder, editing AndroidManifest.xml, and in the last running in the emulator

e) Application Testing

Test applications that have been made if the requirement is appropriate or not. If the application has been completed as required and then proceed to the next stage, but if the application does not meet the assessment needs to be done again.

f) Implementation

When the application is completed through the testing phase and work as needed, the application can already be implemented.

g) Create Report

After the application can be run with the appropriate, then the last stage is to make a report.

2. Use Cases in this Application as shown Figure 2.

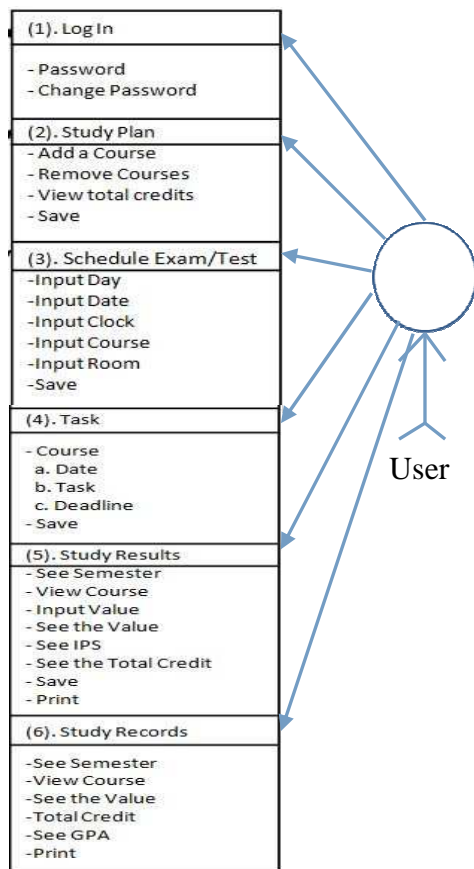


Figure 2. Use Cases

3. Database Design

The database used in the design of this application is SQLite. The data stored in the project there are two kinds of data strings (text) and data SQLite. String data stored in a file strings.xml in the folder res / values, whereas the data used SQLite there are 6 pieces, namely:

Tabel 1. Table of Course (contains all courses)

No.	Column	Tip
1.	Id	int PK autoincrement
2.	Code	varchar(50)
3.	Semester	varchar(50)
4.	Name_course	varchar(100)
5.	Sks_course	varchar(50)

Tabel 2. Table of Study Plan (containing courses taken in each semester)

No.	Column	Tip
1.	Id	int PK autoincrement
2.	Code	varchar(50)
3.	Semester_input	varchar(50)
4.	Name_coure	varchar(100)
5.	Sks_course	varchar(50)

Tabel 3. Table of Study Result (containing courses taken each semester by the completeness of its value)

No.	Column	Tip
1.	Id	int PK autoincrement
2.	Code	varchar(50)
3.	Semester	varchar(50)
4.	Semester_input	varchar(50)
5.	Name_course	varchar(100)
6.	Sks_course	varchar(50)
7.	Value	varchar(50)

Tabel 4. Table of Exam Schedule (containing courses taken each semester to complete the exam schedule)

No.	Column	Type
1.	Id	int PK autoincrement
2.	Code	varchar(50)
3.	Semester	varchar(50)
4.	Semester_input	varchar(50)
5.	Name_course	varchar(100)
6.	Sks_course	varchar(50)
7.	Date	varchar(50)
8.	Day	varchar(50)
9.	Room	varchar(50)
10.	Time	varchar(50)

Tabel 5. Table of Class Schedule (containing courses taken each semester to complete course schedule)

No	Column	Type
1.	Id	int PK autoincrement
2.	Code	varchar(50)
3.	Semester	varchar(50)
4.	Name_course	varchar(100)
5.	Sks_course	varchar(50)
6.	Day	varchar(50)
7.	Room	varchar(50)
8.	Time	varchar(50)

Tabel 6. Table of Task (task lists)

No.	Column	Type
1.	Id	int PK autoincrement
2.	Code	varchar(50)
3.	Semester_input	varchar(50)
4.	Name_course	varchar(100)
5.	Deadline	text
6.	Task	text

RESULT AND DISCUSSION

Result from this creating application research is the application could be used by students for planning their study with stores their data's in it, so students no need to worry about the lost data's. This application

has 9 menus Name and Nim, Active Semester, Study Plan, Schedule, task, Study Result, Study Records, Change Password, and About. For the menu's interface, see information below:

1. User Regristation Interface

Figure 3. User Regristation

Figure 3 is form function to protect saved data and only could be accessed by its owner.

2. Sign In Interface

Figure 4. Sign In Interface

Figure 4 is sign in content shows an interface that should filled by user password that had been saved when doing registration on the registrations form.

3. Name and Nim Interface

Figure 5. Name and Nim Interface

Figure 5 is a Name and Nim shows a form that user should store his name and NIM, so the owner information will appear in the application.

4. Active Semester Interface

Figure 6. Active Semester Menu

On the picture above, user should choose the semester depends on what semester is he study now. From this form, user will be directed to first semester or the semester that haven't he/she done yet.

5. Main Menu Interface

Main Menu pages will appear after the user doing registration, Inputting Name and NIM, back to sign in and choosing active semester. On the main menu, there are 9 menu buttons.

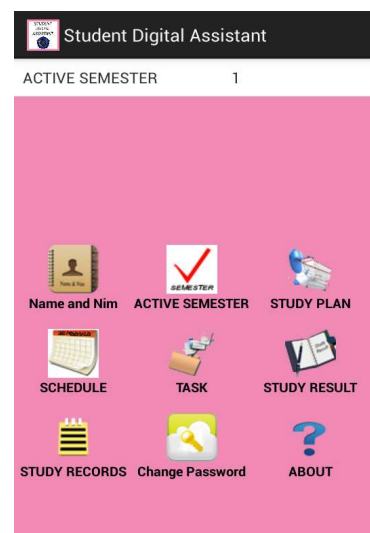
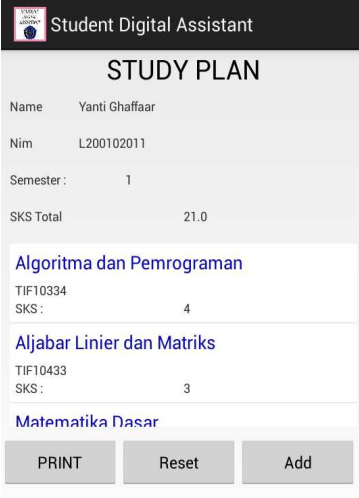


Figure 7. Main Menu

Those buttons are :

a. Study Plan




The screenshot shows the 'STUDY PLAN' interface. At the top, it says 'Student Digital Assistant'. Below that, the title 'STUDY PLAN' is centered. The user's name is 'Yanti Ghaffaar' and their Nim is 'L200102011'. The semester is '1' and the total SKS is '21.0'. There are three course entries: 'Algoritma dan Pemrograman' (TIF10334, SKS: 4), 'Aljabar Linier dan Matriks' (TIF10433, SKS: 3), and 'Matematika Dasar'. At the bottom, there are three buttons: 'PRINT', 'Reset', and 'Add'.

Figure 8. Study Plan Interface

Study Plan menus used by the user to select the courses that have been selected. Study consisted of a content plan the function add icon to add courses and icon print function to print the results of a study on the semester plan that have been.

b. Schedule



The screenshot shows the 'SCHEDULE CLASS' interface. It lists three courses: 'Algoritma dan Pemrograman' (TIME: 19:19, DAY: Tuesday, ROOM: International 1), 'Aljabar Linier dan Matriks' (TIME, DAY, ROOM), and 'Matematika Dasar' (TIME, DAY, ROOM). The bottom part of the screen is a large pink rectangle.

Figure 9. Schedule Class



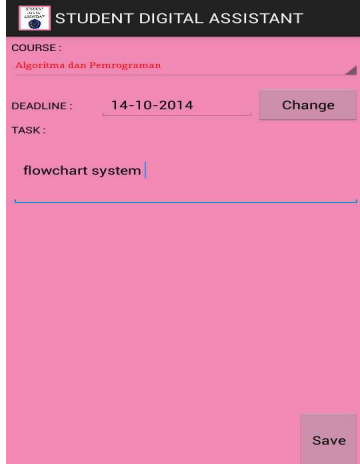
The screenshot shows the 'SCHEDULE TEST' interface. It lists three courses: 'Algoritma dan Pemrograman' (Time: 19:19, Date: 28-8-2014, Day: Thursday, Room: Jsem 1), 'Aljabar Linier dan Matriks' (Time, Date, Day, Room), and 'Matematika Dasar' (Time, Date, Day, Room). The bottom part of the screen is a large pink rectangle.

Figure 10. Schedule Test

Schedule menu consists of two options, namely the Class Schedule and Exam Schedule. Class Schedule function to keep the class schedule while saving exam schedule serves to store the exam schedule.

c. Task

Task is a menu that used by user as study assignment storage. On the task page there is a button shaped plus icon that used to adding study assignment.



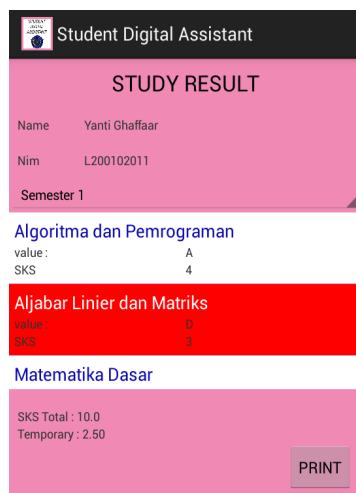
The screenshot shows the 'TASK MENU' interface. It has a header 'STUDENT DIGITAL ASSISTANT'. Below that, it says 'COURSE : Algoritma dan Pemrograman'. There is a 'DEADLINE : 14-10-2014' with a 'Change' button. Below that, it says 'TASK : flowchart system'. At the bottom right, there is a 'Save' button.

Figure 11. Task Menu

The user could choose what subject that will be given by study assignment note with press the triangle icon that exists in the course column. Deadline function is to change description deadline date that assignment should be finished. Then the user could type what assignment that he/she got on those subjects.

d. Study Result

Study Result menu functions to the user as a store of value in the course each semester. Students can store the value of each course, see the IPS and GPA, and scored the results of the study.



STUDY RESULT	
Name	Yanti Ghaffaar
Nim	L200102011
Semester 1	
Algoritma dan Pemrograman	
value :	A
SKS	4
Aljabar Linier dan Matriks	
value :	D
SKS	3
Matematika Dasar	
SKS Total :	10.0
Temporary :	2.50
PRINT	

Figure 11. Study Result

e. Study Records



STUDY RECORDS	
Name	Yanti Ghaffaar
Nim	L200102011
Algoritma dan Pemrograman	
SKS =	4 sks
value :	A
Aljabar Linier dan Matriks	
SKS =	3 sks
value :	D
Matematika Dasar	
SKS Total	10.0
GPA	2.50
PRINT	

Figure 12. Study Records

Study Records is a page, which is used to show the entire of courses score that have been entered by a user on the study result menu. In this page, it shows all lists of courses and its score. Where the D score of the courses will be in red color and while the others will be in white color. The users can also see their total course credits and GPA. The printing button is function as print out the results of the study records by saving the file in pdf format and it will be ready in student digital assistant folder on file manager.

e. Change Password

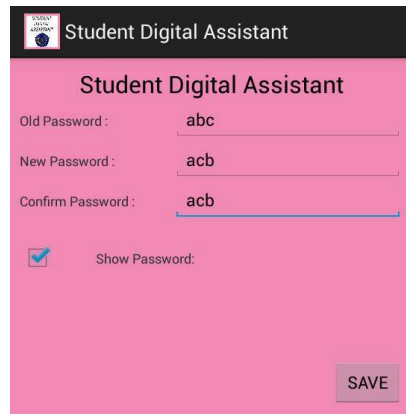


Figure 13. Change Password

Figure 13 shows a page from the password change menu. The password change menu is function to change the user's password so that the data will be safe. On the password change menu, the user should enter the old password, the new password and confirm the new password. If the old password is entered wrongly then the new password and the confirm password have not been entered, the monitor will warn the user to enter the password correctly.

f. The About Page Menu

The About Page Menu describes the data about application. It contains my name as the creator and the application logo.



Figure 14. About Menu

Analysis and Discussion

The Student Digital Assistant Application Android based has some advantages and disadvantages, for instance:

1. The Advantages

There are some the advantages of applications, such as:

- a. The application is more effective and efficient than academic guidance books, because this application can minimize the data loss. This application can be used by the user as a storing of all score that consist the total of GPA, total course credits, etc.
- b. The application has many benefits for students, because the user can use the application can be as a store data of student's score, student's coursework, the schedule of exam

and the class schedules and also it can be used to print the final score in each semester. So, this application helps the users to manage their courses so that they can finish the study as they planned.

- c. This application is easy to operate. The application can be freely downloaded at play store for all mobile Android OS.
- d. There is *swipe gesture* feature, to make easier for users to access the application by sliding the screen.
- e. The application is practical and easy to carry anywhere.

2. Disadvantages

There are some disadvantages of applications, such as:

- a. The application only can be installed in Ice Cream Sandwich minimum version of Android operating system.
- b. The subject course cannot automatically update in a curriculum Conversion.
- c. There is no alarm warning in the exam schedules, class schedules and assignment deadlines.
- d. The application can only be used for one department.
- e. The display application is less interested.

CONCLUSION

As the conclusion, the applications has completed and succeed by the result of application testing. The application is created by Android Development Tool software with 22.0 version. As the results of research, the application can be used by students for managing their administrative courses, so that the students can plan their studies in order to pass by the target. The size of applications is 3.75 MB. The application contains Name and Student Number, Active Semester, Study Plan, Schedule, Task, Study Result, Study Records, Change Password, and About.

BIBLIOGRAPHY

- Bintarto, Sandjarjo. 2013. *“Perancangan Aplikasi Pengenalan Beberapa Bagian Candi Borobudur Berbasis Augmented Reality..skripsi.*Fakultas Teknik, Teknik Elektro.Surakarta: Universitas Muhammadiyah Surakarta.
- Fernando, mario. 2013. *“Membuat Aplikasi Android Augmented Reality Menggunakan Vuforia SDK and Unity”.*Manado, 2013.Prihantono, Dhika. 2013. *“ Membuat aplikasi game 3D interaktif dengan Augmented Reality”.* Surakarta.2013.
- Purnama, Septian Chandra, 2010. *“Simulasi Perakitan Komputer Berbasis JAVA FX”.* Skripsi Fakultas Teknik, Teknik Elektro. Surakarta: Universitas Muhammadiyah Surakarta.
- Vuforia, 2011. *“Vuforia SDK Architecture”* Include in: [<https://developer.vuforia.com/resources/dev-guide/vuforia-ar-architecture>](https://developer.vuforia.com/resources/dev-guide/vuforia-ar-architecture) [accessed at 17 April 2014].
- Wibowo, Fajar Ary, 2012. *“Aplikasi Cara Merakit Komputer dan Merawat Komputer Berbasis Android”.*skripsi. Fakultas Ilmu Komputer, Sistem Informasi. Depok: Universitas Gunadarma.